



# Prevalence of Smoking and Risk Factors Among Students at a University in Turkey

## Türkiye'nin Bir Üniversitesinde Öğrencilerin Sigara Kullanımı ve Risk Faktörlerinin Değerlendirilmesi

Prevalence of Smoking and Risk Factors

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### Özet

**Amaç:** Bu çalışmada iç Anadolu'da bulunan bir üniversitenin sağlık yüksekokulu ile Beden eğitimi ve spor yüksekokulunda okuyan öğrencilerin sigara kullanım prevalansı ve buna bağlı risk faktörlerinin tespit edilmesi amaçlanmıştır. **Gereç ve Yöntem:** Tanımlayıcı tipteki bu çalışmada Ekim-Aralık 2015 tarihleri arasında eğitime devam 1082 öğrenciye uygulanmıştır. Veriler, literatür taraması ile oluşturulan çoktan seçmeli anket ile yüz-yüze görüşme yöntemiyle toplanmıştır. **Bulgular:** Çalışmaya katılan 1082 kişiden 675 kişi (%62.4) kadın, 407'si (%37.6) erkekti. 256 (%23.7) kişi şu an sigara kullanmaktaydı. Sigara kullananların başlama yaşı ortalama  $16.61 \pm 2.72$  idi. Katılımcıların %96'sı devlet okulundan, %4'ü özel okuldan mezundu. Bu çalışmada, sigara kullanımı ile cinsiyet, sınıf, yaş, kaldıkları yer, kaldıkları yerde sigara kullanımı ve öğretmenlerin sigara kullanımını bilme durumu arasında istatistiksel anlamlı fark bulunmuştur ( $p \leq 0.05$ ). **Tartışma:** Çalışma sonucunda öğrencilerde sigara kullanım prevalansı yüksek olduğu tespit edilmiştir. Bu sonuçlar aynı zamanda sigara ve sağlıklı yaşam davranışlarını artırmak için bir rol model olacak sağlık yüksekokulu ve spor okulu öğrencilerinin bilgi ve sigaranın sağlık riskleri konusunda farkındalık geliştirmek için eğitimin gerektiğini göstermektedir. Sigaraya başlamanın önlenmesi ve kullanıcıların bırakmasını artırabilmek için önce öğrencilere sigaranın sağlık riskleri konusunda eğitimler verilmesi gereklidir.

### Anahtar Kelimeler

Sigara; Tütün; Sağlık Riskleri; Üniversite Öğrencileri; Sigara Yasaları

### Abstract

**Aim:** The aim of this study was to investigate smoking prevalence and related risk factors among students at the Health School and Physical Education & Sports School of a university in central Turkey. **Material and Method:** A cross-sectional study was conducted on a total of 1082 students continuing their education at the school from October to December 2015. A multiple-item questionnaire was administered to students using the "answering-under-supervision" technique during lessons. **Results:** A total of 675 responders were female (62.4%) and 407 responders were male (37.6%) out of 1082 participants. Of the 1082 students, 256 (23.7%) were current smokers and the average age for starting smoking was  $16.61 \pm 2.72$ . Most participants graduated from public (96.0%) school, while 4.0% graduated from private high schools. In this study, we found that the smoking prevalence was associated with some variables such as sex, classroom grade, age, place of residence, cigarette or tobacco use in the living place, and knowledge status of students about their teacher's smoking habits ( $p \leq 0.05$ ). **Discussion:** Our study results revealed that smoking prevalence was high among the students. These results also indicate that health school and sports school students who will be role models for reduced smoking and healthy living behaviors in public should be trained to improve their knowledge and awareness about health risks of smoking. Providing education on the health risks of smoking to students who have not receive an education before can prevent smoking initiation and increase the quitting rate.

### Keywords

Smoking; Tobacco; Health Risks; University Students, Anti-Smoking Law

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## Introduction

Tobacco use remains the main global cause of preventable death. It causes nearly 6 million deaths each year. The majority of these deaths are in low- and middle-income countries. In addition, over the next years, it is predicted that this discrepancy will widen [1, 2, 3, 4]. If tobacco uses trends remain as at present, by the year 2030, tobacco will cause the deaths of more than 8 million people worldwide every year. 80% of these untimely deaths will occur among individuals living in countries with low and middle incomes [3, 5]. Smoking rates have especially increased among women, adolescents, and young adults [6, 7, 8]. Most college students are susceptible to the tobacco industry and the possibility of starting smoking. Young people are exposed to pro-tobacco messages and are also offered free cigarettes [9, 10, 11].

In Turkey, with legal preventions taken and anti-smoking campaigns, a decrease in tobacco has been reported in studies since 2008. Countrywide, tobacco use has decreased from 31.2% in 2008 to 27.0% in 2012. According to the 2010 Global Adult Tobacco Survey (GATS) Turkey Report of the Ministry of Health and the 2011 Global Tobacco Survey of the World Health Organization (WHO), 31.3% of individuals aged fifteen and older smoke. But, according to the 2012 GATS Turkey Report, the smoking rate diminished to 27.0% among individuals aged fifteen and older. Studies were also conducted to detect cigarette use frequency among college students. It was found that the smoking rate ranges between 7.8% and 58.0% among college students [1, 3, 12, 13]. Even though tobacco use is significant for each individual in society, it is more important for some groups. Groups which are known as "Role Models" (healthcare personnel, teachers, artists and athletes, politicians, etc.) have special responsibilities and special roles in regard to tobacco use [1, 12].

In addition to the prevalence of smoking in Turkey, it is seen that the rate of smoking is also high among healthcare personnel and health students. According to WHO data, the rate of smoking among medical personnel is equal to or even higher than that of the general public [4]. Studies of the rate of cigarette smoking among nurses in Turkey report a prevalence rate between 40.3% and 68.6% [14].

In studies investigating the smoking frequencies of students in health high schools and health faculties in Turkey, it was detected that 19.2%, 17.5%, 25.3% of the students smoke [2, 15, 16]. Nurses have a fundamental role in preventing and decreasing smoking because people find it easier to have contact with them and tend to trust them. Moreover, nurses serve as role models to the public either with positive or negative health habits because they are often at the center of public interest [17]. In a study focused on football players' smoking habits in amateur football clubs, it was reported that 41.5% of the amateur football players were using cigarettes; 64.5% of the players who smoked described themselves as cigarette addicts [18].

Another study conducted in schools that provide physical and sports education with the goal of raising athletes and role models, reported that 14.0% of the students started smoking in high school and that 49.3% of them smoked their first cigarettes between the age 14 and 18 [19]. Moreover, another study found that 25.2% of students smoked [1].

It is significant to know the factors that affect smoking frequency and cigarette use of health high school, physical education, and sports school students. These students will serve as role models to the society because they will work in fields related to healthy living and sports activities. Because of this, this study aimed to explore smoking prevalence and attitudes toward cigarette use among College of Health students and Physical Education and Sports School students of a university situated in central Turkey.

The present study aim was to describe smoking profiles of students and a range of variables associated with smoking, such as smoking initiation age and reasons for smoking. Moreover its aim was to assess awareness of students about the health risks of smoking and actions to prevent adverse health effects. It also focuses on the levels of knowledge of the students about national anti-smoking legislation and laws in Turkey. Lastly, it compared knowledge of smokers and non-smokers about the health risks of smoking, actions to prevent smoking, and assessed the students' awareness of smoking-associated health risks, actions to prevent health risks associated with smoking, and national anti-smoking legislation and laws.

## Material and Method

This study is a cross-sectional type of epidemiological study conducted between October and December 2015 at the Ahi Evran University College of Health and Physical Education and Sports. Data were obtained through 35-item self-administered questionnaires to determine sociodemographic characteristics of the respondents, their level of knowledge, attitudes, and behaviors regarding cigarette use. Survey data were obtained from all students in the school (N = 1082) without using a sampling method. Students filled out multiple-item questionnaires, administered using the "answering-under-supervision" technique during lessons. Before conducting the study, permission was received from the relevant directorate. Students were given information about the research and those who voluntarily agreed to participate were included to the study. In the present study, a total of 1082 out of 1201 students responded, a response rate of 90.1%. In the present survey, exclusion criteria were having health issues, absenteeism on the day of administration, being on vacation, and refusal to participate in the study. Two questions that determined the classification of smoking status were included in the questionnaire. These questions were modified from a U.S. version for the classification of smoking status to Turkish [5].

The questionnaire items for participants and their possible responses are listed below:

- 1- Have you smoked a total of 100 cigarettes (five packs) in your life? (Yes/No)
- 2- Do you currently smoke? (Yes, every day/Less than once a day or more than once a week/No)

Respondents whose answer to the first question was "no" were classified as "never smokers" and the other participants were classified as "smokers." Although the second question was composed of three possible answers in the present study, it was a two response item (Yes or No) in the U.S. version. Smokers whose response to the second question was "less than once a day or more than once a week" were classified as "ever smok-

ers.” Smokers whose answer to the second question was “no” were classified as “ex-smokers” [2]. Data collected in this descriptive and cross-sectional study were given as mean  $\pm$  standard deviation and percentages. Statistical analyses were evaluated by using SPSS version 17.0 software package. The chi-square test was used to analyze important relationships between sex, age, type of high school that was attended, place of residence, education of mother and father, cigarette or tobacco use in the living place, status of knowledge of students about smoking habits of their teacher, and alcohol consumption. Statistical significance was set at  $p < 0.05$ .

## Results

A total of 1082 participants were in the study, 407 (37.6%) male and 675 (62.4%) female. The mean age of participants was  $21.30 \pm 2.06$  years (range: 17-36). The prevalence of smoking among all respondents was 23.7% (n: 256). The mean age of smoking initiation was  $16.61 \pm 2.72$  years. A majority of participants graduated from public (96.0%) school, while the other 4.0% graduated from private high schools. Sociodemographic characteristics and factors related to the smoking habits of the respondents are shown in Table 1. Univariate (chi-square test) analysis was conducted to detect factors which are significantly associated with smoking such as sex, department, grade, age, place of residence, cigarette or tobacco use in the living place, and knowledge status of students about their teachers' smoking habits ( $p \leq 0.05$ ). Students who had knowledge that their teacher was a smoker had a higher smoking prevalence. On the other hand, the type of the high school and parents' education level ( $p > 0.05$ ) did not have a significant impact on smoking rate, although the smoking rate diminished as the mother's education level increased. The attitudes of students about smoking are shown in Table 2. A total of 934 (86.3%) participants stated that the law restricting indoor of smoking is necessary. 679 (62.8%) of the participants felt that scenes in media that demonstrate smoking should be censored, while 292 (27.0%) responded that these limitations are not necessary in movies and TV programs. 621 (57.4%) responded that health warnings on the cigarette packages that indicate health risks are insufficient. Participants responded that diseases caused by smoking should be demonstrated on cigarette packages. Moreover, 807 (74.6%) responded that cigarette prices are a consideration of smokers. 79% of respondents believed cigarettes must not be sold to children under age 18. 503 (46.5%) thought that doctors need to convince smokers to quit smoking. The number of respondents who indicated that this significant task should be conducted by sportspeople was 250 (23.1%), as shown in Table 2. The smoking habits and complaints stated by students who are smokers (n = 172) are given in Table 3.

## Discussion

According to the WHO, tobacco use forms a major threat to sustained wellbeing. Even though the smoking rate has decreased during the last ten years, it is still too high. Turkey is included in the top ten countries where tobacco use is very high. Many studies have been conducted of the smoking rate among different groups [20, 21]. According to the Turkey Youth Sexual and Reproductive Health Survey 2007, cigarette use is common

among participants aged between 15 and 24 years, particularly among male participants, who have a 34.9% smoking rate compared to female participants with a smoking rate of 9.1% [21]. Seizer H et al. (2008) reported that smoking prevalence was 45% in their study of nurses. Another study conducted with nursing students found 19.6% cigarette use [17, 22].

Table 1. Socio-demographic characteristics and smoking status of students.

Variable	Smoking Status						p Value
	Smoker		Non-Smoker		Total		
	N	%	N	%	N	%	
Gender							
Male	154	60.2	253	30.6	407	37.6	$p \leq 0.000$ 72,607
Female	102	39.8	573	69.4	675	62.4	
Grade							
1th	55	21,5	213	25,8	268	24,8	$p=0.050$ 7.833
2th	68	26,6	266	32,2	334	30,9	
3th	85	33,2	221	26,8	306	28,3	
4th	48	18,8	126	15,3	174	16,1	
Age (years)							
18-20	62	24,2	343	41,5	405	37,4	$p \leq 0.000$ 30,685
21-23	152	59,4	395	47,8	547	50,6	
24-26	39	15,2	70	8,5	109	10,1	
>27	3	1,2	18	2,2	21	1,9	
Type of graduated high school							
Public	243	94,9	796	96,4	1039	96,0	$p=0.195$ 1.071
Private	13	5,1	30	3,6	43	4,0	
Place of Residence							
Living with family	36	14,1	110	13,3	146	13,5	$p=0.001$ 16.227
living with friend	131	51,2	316	38,3	447	41,3	
Hostel	86	33,6	382	46,2	468	43,3	
Living alone	3	1,2	18	2,2	21	1,9	
Mother's education							
Illiterate	31	12,1	124	15	155	14,3	$p=0,380$ 3,079
Primary school degree	141	55,1	473	57,3	614	56,7	
High school graduate	68	26,6	184	22,3	252	23,3	
Postgraduate	16	6,3	45	5,4	61	5,6	
Father's education							
Illiterate	19	7,4	49	5,9	68	6,3	$p=0,318$ 3,522
Primary school degree	99	38,7	370	44,8	469	43,3	
High school graduate	100	39,1	285	34,5	385	35,6	
Postgraduate	38	14,8	122	14,8	160	14,8	
Cigarette or Tobacco use in the living place							
Not smoking	188	73,4	391	47,3	579	53,5	$p \leq 0.000$ 53,520
Smoking in every place	68	26,6	435	52,7	503	46,5	
Knowledge status of students on their teachers' smoking habits							
Students who know	167	65,2	393	47,6	560	51,8	$p \leq 0.000$ 24.398
Students who do not know	89	34,8	433	52,4	522	48,2	

Table 2. Attitudes of the students on smoking.

Attitude	Number (n)	Percentage (%)
On the law of smoking forbidden in all indoors		
Necessary	934	86,3
Not necessary	101	9,3
Not important	47	4,3
Application of laws associated with smoking or tobacco use in the scenes of films and movies		
Necessary	679	62,8
Not necessary	292	27
Not important	111	10,3
Application of health risks of smoking warnings on cigarette packets		
Sufficient	286	26,4
Insufficient	621	57,4
Not important	175	16,2
On the prices of cigarette or tobacco		
More expensive	807	74,6
Suitable	83	7,7
More cheaper	192	1,7
No effect		
Opinions on selling cigarette to the children under the age of 18		
Not sold	855	79
Parent's commission	49	4,5
Free	47	4,3
Not used	131	12,1
Having previous training about health risks of smoking		
Yes	394	36,4
No	688	63,6
What do you think about, whose mission convince to public for smoking cessation?		
Doctor	503	46,5
Teacher	471	43,5
Sportspeople	250	23,1
local administration	155	14,3
Parents	407	37,6
Friends	258	23,8
Nobody has a mission	102	9,4
Anybody has a mission	583	53,9

In the study Çilingir et al. (2012) conducted with health high school students, it was found that 19.2% of them were smoking [15]. In the present study, the smoking rate among students of the health high school was found to be 21.0%. Results similar to the WHO report and other prevalence studies were obtained [23]. Ulus et al. (2012) found 25.2% prevalence of smoking among students of the Physical Education and Sport High School [1]. In the present study, it was found that 26.8% of the Physical Education and Sport High School students are cigarette users. These results were similar to those obtained from other prevalence studies. Students who are in health and sport professions have lower cigarette use rate compared to general public. This difference is due to their desire of being role models for society. Continued smoking will cause negative images for these groups in the longer term. In the short term, it will cause negatives such as bad breath, dry skin, and lower sports performance.

Ulus et al. (2012) found 25.2% prevalence of smoking among students of the Physical Education and Sport High School [1].

Table 3. Behavior's and complaints associated with smoking among smokers (n:172)

Behaviors	Number (n)	Percentage (%)
Cause of smoking initiation		
Friends' influence	92	48,4
Affectation	49	25,8
Curiosity	57	30
Family conflicts	21	11,1
School conflicts	18	9,5
Loneliness	74	43
Other	14	8,1
Complaints associated with smoking		
Dyspnea	81	47,1
Cough	60	34,9
Pharyngitis-sinusitis	27	15,7
Decreasing physical activity	59	34,3
Mouth wounds	19	11
Headache	56	32,6
Other	34	19,8
Do you want to quit smoking?		
Yes	86	50
No	86	50
Why do you want quit smoking?		
Bad smell of cigarette illness	55	32,4
Fear of being sick	21	12,4
Expensive	58	34,3
Social pressure	44	26
Other	16	9,5
Reasons that increase smoking		
After meal	8	4,8
Stress, worry	120	69,8
Tea-Coffee	111	64,5
See someone smoking	102	59,3
Smell	65	37,8
Alcohol	47	27,3
Other	46	26,7
	15	8,7

In the same year, in the Cilingir et al. (2012) study conducted with health high school students, it was found that 19.2% were smoking [15]. From these studies it is seen that Physical Education and Sport High School students have a higher rate of cigarette use compared to the Health High School students. In the present study similar results were also found, possibly because in Turkish culture women who smoke are not welcomed and a majority of health high school students are composed of female students.

The Turkey Youth Sexual and Reproductive Health Survey 2007, a representative study conducted with participants between ages 15 and 24, concluded that cigarette use was more common among males. According to the data, 37.7% of males and 19.2% of females stated that they are currently smoking [23]. In the present study, cigarette use among males was 37.8% while it was 15.1% among females. In this study, it was found that the variables studied (age, grade, place of residence, cigarette or tobacco use in the living place, knowledge status of students or their teachers' smoking habits) were significantly associated

with the prevalence of smoking among students.

Other studies indicate association of smoking with these variables: knowledge status of students about their teachers' smoking habits, education level of parents, place of residence, and age of initiation of smoking [1, 2, 8]. In the present study, the educational level of parents was found to be associated with cigarette use; a decrease was seen in cigarette use when age and degree were increased. This could be because as students move toward senior year internships, their health knowledge has increased and they have an increasing concern to become a role model. Smoking also has a negative impact on sport activities.

It is reported that friends and environmental factors are two of the most significant factors associated with smoking initiation [24]. In the study by Ilhan et al. (2005), peer influence, "wannabe", curiosity, and school issues are seen as causes for smoking initiation [7]. Also, in our study, similar causes were found for smoking initiation: peer influence, loneliness, curiosity, and vanity were most common (respectively; 48.4%, 43.0%, 30.0%, 25.8%). We consider factors like starting college, living far from family, and struggling to make friends as additional triggers for smoking initiation

In the present study, no association was found between smoking and the education level of the father and mother. Most of the students who participated in our study mentioned that a restriction for smoking indoors is necessary and that it is also necessary to censor products like cigarettes in movies and television programs. They also stated that current health warnings on cigarette packages which indicate health risks are not sufficient. Moreover, they emphasized that prices must be higher for cigarettes. With the law restricting indoor smoking in 2008, a noticeable decrease in cigarette sales was observed. It was the lowest rate in the last fifteen years in 2010 because that law forbids smoking indoors; smokers were faced with difficulties and most of them decided to quit [23]. Similarly, in our study, students mentioned that these applications are necessary for smoking management. Most of the students (63.6%) who participated in the study had not received any education about the health risks of smoking.

It is thought that students should be educated during the first years of college about the health risks of smoking, especially since both of the occupation groups can serve as role models in the future. Additionally, providing early education to students at primary school can be more beneficial in decreasing the prevalence of smoking and raising awareness of society about smoking and health risks. According to the students, informing the public about the health risks of smoking should be implemented by doctors, health professional, teachers, parents, and friends. To prevent cigarette use, it is essential to get support from these groups and to conduct further studies on these groups.

#### Study Limitations

There are some limitations to this study. This study was conducted with students at the Health School and Physical Education and Sports School of Ahi Evran University; thus, results cannot be generalized. Also, only survey methods were applied to detect respondents' knowledge about cigarettes, their usage, and attitudes; psychological and biochemical criteria were not included. Moreover, since both of the occupation groups are

role models, there is a possibility of bias when they are answering survey questions about cigarette use.

#### Conclusion

Although Health School and Physical Education and Sports School students reported that the smoking control program application is necessary in Turkey, their cigarette use prevalence is in accord with the literature. Providing education on the health risks of smoking to students who had not received it earlier before can prevent smoking initiation and increase the quitting rate. Furthermore, peer influence is one of the major cause for smoking initiation. Thus, including more students in anti-smoking programs will be beneficial.

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#### Ethical Standards

The required permissions for conducting the study were obtained from school administration and Ahi Evran University Ethics Committee (approval number 2015-03/01) and informed verbal consent was obtained from each student.

#### Competing interests

The authors declare that they have no competing interests.

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